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A school- and home-based preschool was instituted for culturally deprived, functionally retarded, three- and four-year-old Negro children to provide research opportunities and to enable the children to succeed in school. The program consisted of a cognitively oriented morning nursery school, an afternoon home-based program to provide for the individual needs of the children and to involve the mothers in the program, and a series of semi-monthly meetings for parents to provide a place for exchange of ideas and to involve parents in their children's education.

By 1964, one group had finished one year of the preschool, one year of kindergarten, and entered the first grade; a second group had begun as three-year-olds for the normal two year preschool training before kindergarten; and a third group had just begun. The most effective teaching method was found to be "verbal bombardment" -- a steady stream of questions and comments to draw the child's attention to aspects of his environment.

The overall performance of the group which had completed kindergarten demonstrated better ability in nearly all aspects when compared to a control group, thus implying that the program may have long-range benefits as hoped.

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PERRY PRESCHOOL PROJECT
PROGRESS REPORT

June, 1964

David P. Weikart, Project Director
Constance K. Kamii, Research Associate
Norma L. Radin, Visiting Teacher
Ypsilanti Public Schools
Ypsilanti, Michigan

Paul H. Emerich, Ph. D., Superintendent

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Preschool Administrator

C. Eugene Beatty, Perry School Principal

Preschool Teachers

Evelyn Moore, Head Teacher

Emmalyn Anderson

Louise Derman

Mary Hamilton

Donna McClelland

Psychologists

Bryon Aldrich

Percy Bates

Virginia Schmidt

Research Assistant

Donna Foley

Secretaries

Margaret Heath

Elaine Wiard

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TABLE OF CONTENTS

	<u>Page</u>
I. Introduction	1
II. Samples	4
III. The Program	6
School-based morning program	6
Home-based afternoon program	20
Group meetings	25
IV. Findings	27
V. Summary and Conclusions	57

Appendix A: Review of 1960-1963

Appendix B: Curriculum Illustrations

Appendix C: Forms and instruments for
assessment

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INTRODUCTION

The Perry Preschool Project* is an experiment to assess the longitudinal effects of a two-year preschool program designed to compensate for mental retardation which is associated with cultural deprivation. The program consists of a cognitively oriented morning preschool and afternoon home visits to involve mothers in the educative process. The project has been in operation since September, 1962.

The population from which the samples are selected is Negro, culturally deprived, and diagnosed as mentally retarded. Control and experimental groups are equated for mean cultural-deprivation rating and mean Stanford-Binet IQ. Other measures include the Leiter International Performance Scale, the Peabody Picture Vocabulary Test, the Illinois Test of Psycholinguistic Abilities, the Parental Attitude Research Instrument (Radin Adaptation), and various school measures such as achievement tests, teacher ratings, and attendance records.

The morning program is a permissive but teacher-structured one to guide the youngsters toward an increased awareness of the world around them. Heavier emphasis is placed on verbal stimulation and interaction, dramatic play, and field trips than on social behavior and other traditional concerns of nursery schools.

The weekly afternoon home visits provide each family with an opportunity for personal contact with the child's teacher. The mother is encouraged to participate in the actual instruction of her child, thereby increasing her understanding of school, teachers, and the educative

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process. The teacher's demonstration of child-management techniques indirectly teaches the mother alternative ways of handling children.

Group meetings for the mothers and fathers of preschool children provide opportunities for exchanging problems and views on children. This group approach serves to reinforce the changes in individual parents' views concerning the education of children.

The Project involves a series of replications to obtain sufficient numbers for longitudinal study. Since youngsters attend preschool for two years, a new pair of three-year-old experimental and control groups is added each year to the previous samples. To date, the experiment has not been fully replicated although two experimental groups have completed preschool and a third group has begun its second year. The various groups who have attended school for different lengths of time have been designated as "Wave 0", "Wave 1", and "Wave 2". Wave 0 and Wave 1 started preschool in the fall of 1962. At that time, the Wave 0 children were four years old. The Wave 0 youngsters have spent a year in the nursery and a year in kindergarten and are now in first grade. Wave 1, the only group who have completed two years in the nursery, is currently in kindergarten. The Wave 2 youngsters started preschool in the fall of 1963 at age three, have completed a year in the nursery, and are now in their second year of preschool.

This progress report will describe the experience with the above three waves and their progress to June, 1964. The work through June, 1963, is summarized in Appendix A. Appendix B includes illustrations of particular units of study, field trips, and a booklet prepared for mothers to show them how to teach dramatic play. Appendix C contains the various forms currently in use, some of which were developed locally and have not been published. Several papers in various stages of publication are

referred to by title in the body of the report. Interested readers may wish to request specific appendices.

The findings to date are tentative and the question of whether or not preschool "helps" cannot be answered with a simple "Yes", although the data generally indicate the superiority of the children who attended preschool. It is felt that the recent interest in preschool education calls for the sharing of ideas from the various projects throughout the country, however tentative the findings may be.

II. SAMPLES

The specific population of the Perry Preschool Project was defined as three- and four-year-old children living within the boundary of the Perry School district, coming from culturally deprived families, and testing in the range of "educably mentally retarded". (See Appendix A or the June, 1963, progress report for a detailed description of the community, schools, definition of cultural deprivation, and sample selection for Waves 0 and 1, etc.)

The experimental and control groups were matched initially on two selection criteria: Cultural deprivation and mental retardation. Two additional factors, sex ratio and percentage of working mothers, were also balanced when possible.

Wave 2 was selected in the same manner as the two earlier waves. From a complete survey of the total population in the Perry School district, the three-year-old children who were born between December 2, 1959, and December 1, 1960, in culturally deprived homes were identified. The Stanford-Binet Intelligence Scale, Form L-M, was then administered, and those who were certified as mentally retarded by a diagnostician were considered eligible for inclusion in the matched control or experimental group. Descriptive data on the experimental and control groups of Waves 0, 1, and 2 can be found in Table 1.

**Table 1. Characteristics
of the Perry Preschool Project Samples**

Characteristic	Experimental	Control
Wave 0	(N = 13)	(N = 15)
1. Stanford-Binet I.Q. (Mean)*	78.4	75.0
2. Cultural Deprivation Rating (Mean)*	8.5	8.2
3. Percent of Boys	62%	60%
4. Percent of Working Mothers	8%	20%
Wave 1	(N = 10)	(N = 9)
1. Stanford-Binet I.Q. (Mean)*	79.1	78.3
2. Cultural Deprivation Rating (Mean)*	8.4	8.3
3. Percent of Boys	60%	67%
4. Percent of Working Mothers	20%	33%
Wave 2	(N = 13)	N = 14)
1. Stanford-Binet I.Q. (Mean)*	80.5	79.4
2. Cultural Deprivation Rating (Mean)*	8.8	8.2
3. Percent of Boys	38%	50%
4. Percent of Working Mothers	23%	22%

*Group matching factor

THE PROGRAM

I. The School-Based Morning Program

The Morning program offered an opportunity to involve each child in a set of activities designed to compensate for and prevent further cognitive deficits. The preschool environment, with its special equipment and traditional activities, provided the basic framework, and two types of teaching were used to accomplish the particular goals of this project: Structured group teaching and organized area teaching. These techniques will be discussed with illustrations, and will be followed by comments on the utilization of informal field trips.

A. Group Teaching

During the structured group teaching time (about 10 - 20 minutes each morning), the 22 youngsters were divided into two fairly homogeneous groups on the basis of cognitive development. Exploratory instructional units were sequentially introduced by the two teachers in charge of each group, and the youngsters met in small "group rooms" partitioned off from the large preschool room. The activities of the group were structured about a particular skill deficit observed in the children or on pre-academic concepts which were felt to constitute the foundation for later growth.

Exploratory units were so designed that each child could actively participate. For example, in a unit on discovering and understanding dissolving as a phenomenon, each child was given an individual container and items with which to experiment. Dry pudding, Jell-O, sugar, flour, etc., were mixed

at various times by each child for direct experience and discovery. This device seemed to be an effective technique for motivating the youngsters.

The two groups were, of course, programmed separately. The more advanced group was able to undertake fairly long units involving language usage, relatively refined auditory discrimination, complex dramatic play, etc. The less advanced group composed of mainly three-year-olds required a great deal of time to become oriented to group activities. This group spent time in basic skill training and simple, pre-math concepts, such as geometric forms. Specific illustrations will provide an idea of structured group teaching. A unit in geometric forms designed for the three-year-olds and a dramatic-play unit on animal movements designed for the more advanced group are presented below.

Unit:

Geometric Forms No. 3 (for three-year-olds)

Purpose:

To continue teaching geometric shapes
To introduce the words "in" and "out"

Activity:

Each child was given a box (gift box) containing cardboard squares, circles, and triangles. The teacher held up a shape and the child was to find a shape to match. When the children found a shape, they took it out of their boxes, and laid it in the middle of the table. The game was then reversed. The teacher held up a shape while the children looked for the same shape to put in their boxes.

Unit:

Dramatic play -- animal movements (For advanced group)

Purpose:

To stimulate creative movement

Activity:

The teacher began the activity by telling each child to find a space of his own. The teacher drew a circle around each child with chalk, and this area became "his" space. The teacher emphasized the importance of each child's knowing where his space was. The teacher suggested "moving like animals", showing pictures of animals with writing underneath, e.g., "Jump like a kangaroo" or "Bend like a giraff". The teacher elaborated on the movement of each animal. The number of cues was gradually reduced from (1) physical movement of the teacher, plus verbal suggestions to (2) verbal suggestions by the teacher while encouraging children's spontaneous movement, and to (3) naming an animal and simply encouraging children to engage in the appropriate movement.

Comment:

The children were very enthusiastic at the beginning of the activity. When told to find a space, they ran, calling to the teacher, "Teacher, this is my space!"

At the beginning of the activity, the teacher had to "show" how to move, but after the second and third picture, the children began to initiate movements without help. In one case, the teacher was just beginning to explain about seals' flippers, and one child began to flop his arms spontaneously.

Much of the success of this activity was probably due to the "space" given to each child. The children seemed to enjoy the boundaries given by the teacher, and the boundaries seemed to enable children to focus better on the activity.

B. Area Teaching

Area teaching, which was scheduled for about an hour each day as soon as the children arrived at school, differed considerably from group teaching. During this period, the children were free to select any one of the four activity centers -- the housekeeping area, the block area, the art area, and the pre-academic (quiet) area -- or to work with any of the available toys and other equipment of interest to him. If he selected an area where a teacher was stationed, the child could participate or observe as long as he chose. The teacher's lesson plans were relatively unstructured and included a variety of activities so that the needs of the various youngsters could readily be met as these youngsters chose to participate. Each of the four areas will be briefly described.

1. Housekeeping area

One of the primary values of the housekeeping area was in socialization, with a minimum of structuring by the teacher. Initially, the children exhibited some hostility toward and/or shyness of adults and peers, an inability to share materials or to engage in independent play, and non-cooperation or outright resistance to social demands. The housekeeping area afforded opportunities for free and spontaneous play because the children brought with them some knowledge of how to play with the materials available, duplicating segments of home on a reduced scale. The children seemed to derive pleasure from manipulating objects which were previously "off limits" to them at home.

In addition to socialization, the housekeeping area was used for cognitive development. The greatly impoverished experiential backgrounds of the children made highly organized and sequential teaching a necessity when the grasp of a concept required a logical, orderly presentation. For this reason, the housekeeping units were frequently used as a method for developing a concept from the concrete level to the abstract level.

A typical unit on foods began with a field trip to a farm to see cows, pigs, and chickens. This was followed by other field trips to a dairy, a hatchery, and a meat-packing plant. After a field trip to the store to purchase meats, eggs, or dairy products, actual preparation of foods took place in the housekeeping area. Visual aids related to the current unit were always in evidence and repeatedly referred to. The units were developed systematically to emphasize the following cognitive areas:

Visual perception

1. Actual observation of animals - their physical characteristics and living and eating habits.
2. Picture recognition of objects actually observed.

Other sensory experiences

1. Taste - "sweet", "sour", "salty", and "bitter".
2. Tactile - "smooth" (flour), "grainy" (salt), "spongy" (dough), "hot", "cold", and "warm".

Language

1. Naming new objects and events.
2. Discussing new experiences and relating events.
3. Dramatic play using newly learned labels and materials.

Memory

1. Recall of field trips and discussion of details.
2. Story telling using new object names.

Concepts

1. Relationships of animals to food, of processing to final food products, and of food to health and growth.
2. Social studies concepts
Community helpers - farmer, milkman, and storekeeper
Transportation of foods - trucks, trains, and boats
Commercial establishments,- stores, markets, and restaurants
3. Math concepts
Size
Quantity - counting money, weighing. "cupful", and "spoonful"
Shapes
4. Science concepts
Melting, freezing, liquids, solids, semi-solids, baking, and frying

The following illustration of a two-week pre-plan related to various aspects of milk will give some idea of the range of activities:

Purposes:

1. To teach about milk - where it comes from, various milk products, and why it is important.
2. To encourage careful observation of different states (liquid, powder, cheeses, whipped cream, pudding consistency, etc.).
3. To feel, smell, taste, and look.

Activities:

1. Have whole milk, powdered milk, and evaporated milk, and see, taste, smell, feel, and talk about differences. Learn the words "powder" and "liquid". Make milk with powder and then with evaporated milk.
2. Make milk shakes.
3. Make whipped cream.
4. Make hot milk and honey.
5. Buy milk products and eat (cheese, sour cream, ice cream, etc.).

6. Put up and talk about pictures of many baby animals drinking milk. Talk about why milk is important.
7. Cut out pictures of milk products from magazines and paste. Learn names.
8. Take a trip to the dairy.
9. Dramatic play showing a large picture of a cow.
10. Bring in a coconut, taste its "milk", compare it with cow's milk.
11. Make vanilla pudding with milk. Have children experiment with making pudding thick or thin.

Teacher Comment:

Many children were fascinated with being able to make regular milk from the powdered and evaporated form and altering its form through whipping.

2. Block area

The block area is a composite of one overlapping activity areas -- (1) large motor skill area, (2) psycho-motor skill area, (3) music and rhythm area, and (4) dramatic play area. Some of these activities were teacher directed and stimulated, while others were initiated and carried out by the children. Typically, a number of activities proceeded simultaneously. Each activity area is discussed below.

a. Large motor skills

Some of the children entering preschool were very fearful of using the equipment. With these children, time was spent developing various large motor skills, such as climbing, jumping, hopping, and rolling. Learning to control and use the body for such activities seemed to change the children's attitude toward their environment. They became better able to relate to the environment and assert themselves in it. As they developed large motor skills, spatial and mathematical

concepts were also introduced, e. g., climbing up, jumping down, and jumping twice.

b. Psycho-motor skills

Many deficits in psycho-motor skills were also apparent. Included in this area were balance, laterality, and directionality. Equipment such as **balance boards**, walking boards, colored squares for walking patterns and other activities as suggested by Kephart were utilized.

c. Music and rhythm

Playing rhythm instruments to recorded music, moving to music, listening to and learning songs accompanied by a guitar and autoharp were important activities. The objectives were to increase the children's sensitivity to the tempo, beat, and quality of music, to develop auditory discrimination of melody and language, to widen range of responses to music, and to introduce new sounds (new instruments and styles of music).

Many of the children were initially very inhibited about using rhythm instruments or moving to music. When the children began to move, it took time to extend their response repertoire beyond the stereotype popular dance steps. The most successful technique was the repeated use of a record very popular with the children (say, by the Beatles) while encouraging increasingly more creative movements. After a period of time, the children could branch out into new musical styles, rhythms, and sounds.

d. **Dramatic play**

Almost all the children entered preschool unable to participate in any kind of dramatic play. As they seemed to have no skills for symbolic play, the teacher began by teaching the very idea of "pretending". She demonstrated a good deal of role playing herself before the children got the idea and lost their inhibitions. She then arranged the props, such as telephones, dishes, and play-store materials, assigned specific roles, directed the behavior, and did much of the verbalization appropriate to the roles. Much of the beginning teaching of dramatic play was done with one or two children at a time.

Dramatic play was developed around family members and activities, animals, and people whose work was of interest to the children, the fireman, policeman, and garage mechanic being favorites, as well as roles in transportation and housing construction. The many field trips were used to stimulate and develop dramatic play, and dramatic play was in turn used to reinforce the learnings from field trips as well as to integrate learning from other areas of the curriculum. Plans for a two-week period illustrate the type of activities carried out in the block area.

Unit:

Transportation

Purposes:

1. To learn names of, looks of, and purposes of common transportation vehicles -- "ways to go to places".

2. To stimulate dramatic play with blocks.
3. To develop large motor and psycho-motor skills.

Activities:

1. Trip to gas station and dramatic play on return.
2. Trip to train station for a train ride.
3. Construct train with wood or with blocks.
4. Construct railroad tracks, put train cars together, and play freight train.
5. Make tickets and play roles of passengers and conductor.
6. Trip to bus station.
7. Construct buildings with blocks, make tickets, and play roles of driver and passengers, using hole puncher and steering wheel.
8. Trip to taxi dispatcher office.
9. Trip to airport.
10. Play taking off and landing (warm up motor and move propeller).
11. Display of pictures of common types of transportation. Have children help put up pictures, name, and discuss pictures.

3. Art area

For most of the children, the preschool program is their first experience with art materials and an introduction to the idea that they, by themselves, can create "something". Most of them were initially fearful of extending themselves to explore, manipulate and create from materials in the environment. With careful matching of art materials and activities with individual children, spontaneous interaction with the environment gradually developed.

The three main goals in the art areas were

1. To develop a sense of pride and power out of an ability to manipulate and control materials to produce "something".

2. To increase awareness of, and sensitivity to, the range of qualities in the physical world.
3. To give opportunities to apply learning from other areas of the curriculum and to create new learning situations.

A two-week unit will illustrate this aspect of area teaching.

Purposes:

1. To encourage using of contrasting materials in many different and new ways.
2. To have children specifically feel contrasts of wet and dry mediums and smooth and rough materials on which to apply mediums.
3. To encourage experimenting with various hand movements to apply the medium.

Activities:

1. Painting with powdered paint in salt shakers on dry and wet paper.
2. Paint on top of powdered paint, with a paint brush dipped in water.
3. Draw with chalk on paper painted with powdered paint.
4. Paint with tempera on the floor.
5. Paint with pastels on colored paper.
6. Paint and print with pastels on burlap and on paper.

4. Pre-academic area

The inadequacy of the children was most clearly observable in pre-academic skills. Pre-kindergarten books, puzzles, and games which serve as a foundation for academic growth were beyond the scope of the children. The following deficits were particularly notable, reflecting the lack of previous stimulation:

1. Curiosity - The youngsters would not attempt to explore the equipment on their own, and they would not imitate the four-year-olds who were more experienced with puzzles and games.

2. Lack of understanding - The youngsters were unable to understand the simplest of books that the teacher might read to them. Pictures and words had little representational value.
3. Difficulty in focusing - The children were highly distractable with little ability to reduce outside stimuli.
4. Inability to sustain attention - The children would frequently begin a self-selected activity such as a puzzle, and if on the first attempt they were unable to put it together, they would refuse to try again.

Because of these difficulties, one-to-one teaching was often arranged. The pre-academic area was equipped to permit children of all levels of ability to function successfully with at least some items. A number of form boards, large pegs and peg boards, one-piece puzzles, as well as picture-completion equipment and Montessori equipment were used.

An illustration from a two-week plan on seeds will give some idea of the activities in the pre-academic area.

Purposes:

Teaching the youngsters to observe these events over a period of time.

1. Plants grow from seeds.
2. What happens when seeds grow (roots down, stems up).
3. What plants need to grow.

Activities:

1. Observe different kinds of seeds (size, shape, etc.).
2. Plant seeds
 - a. in jar with wet paper towel.
 - b. in dirt without water.
 - c. in dirt with water.
 - d. on wet sponge.
3. Observe plants with roots growing in water.
4. Look at books about plants and gardens. Discuss.

Teacher Comment:

The children were very interested in plants and seeds. Most watched the experiments, and several planted their own seeds and watched their progress.

C. Field Trips

Many field trips, alluded to in area teaching, were taken to provide direct experiences with the real world existing beyond that of the deprived child. In general, field trips were taken sequentially with emphasis on a single aspect. For example, a trip to the farm to see apples on trees was followed by another trip to a cider mill and a third trip to a grocery store to purchase cider and apple products. Finally, a cooking experience such as preparing apple sauce took place in the homemaking area.

With the selected field-trip experiences, the teachers were able to develop the child's experiential background in preparation for use of books. Many children seemed to grasp representation in stories and pictures only after direct experience with the "real thing". After parallels between reality and books were discussed, the youngsters were ready to accept more extensive use of books.

Field trips were intensively used as a means of developing and stimulating language. At first, the teacher did not pressure the children to respond to her questions. She spent most of the time interpreting what she and the children were seeing. As the children began to learn labels and to converse with the teacher, she began to ask them to give names and, in some cases, functions, e. g., "What does the red-and-white

sign say?" and "What must we do?" (See Appendix B for verbatim illustration.) By the middle of the first year, the children verbalized more readily, telling the teacher everything they could about what they had seen and heard during the trip. It was found that the "quiet" child could sometimes be encouraged to talk on field trips. Efforts were often made to take a non-verbal child with a verbal one to encourage verbalization.

Another purpose of field trips was to foster occupational role identifications and to raise aspiration levels. Special efforts were made to visit and interview community workers with whom the children could directly identify, e. g., Negro policemen and Negro firemen. As discussed earlier, these role identifications were utilized in dramatic play.

Finally, field trips were used for social development, e. g., explaining rules of behavior for specific settings, paying for purchases, ordering at restaurants, and making telephone calls.

Examples of field trip sites are

Foods

1. Bakery
2. Food market
3. Dairy
4. Hatchery
5. Animal farm
6. Crop farms (pumpkin farm, etc.)

Community services and occupations

1. Fire station
2. Police station
3. Gas station
4. Car wash
5. Bank
6. Restaurant
7. Shopping center
8. Library
9. Drug store

Transportation

1. Train station
2. Airport
3. Bus station
4. Taxi dispatch office

Science

1. Pet shop
2. Duck pond
3. Flower shop
4. Gravel pit
5. Nature walks
6. Natural History Museum
7. Camera shop
8. Lumber store
9. Veterinarian

Construction

1. Beginning construction of buildings
2. Bridge construction
3. Equipment used for construction
bulldozers and cranes

II. The Home-Based Afternoon Program

The purposes of the afternoon, home-based program were to involve the mothers in the education of her child, to demonstrate the process of teaching, and to tutor the child on a one-to-one basis. The home visits also offered an opportunity for the teacher to become more cognizant of the child's deficits, thereby enabling her to work more effectively with each child in the classroom.

Two types of afternoon sessions were conducted: Cognitive skill training and field trips. In both types of sessions, efforts were constantly made to involve the mother, as the major emphasis of the afternoon program was to effect a change in the mother's understanding of the educational process. The two types of afternoon sessions are described below.

A. Cognitive Skill Training

1. Visual training in the home

The development of visual skills in handling both representational and abstract materials received major emphasis in the afternoon program. In an attempt to overcome deficits in language skills, the teacher began by teaching the child to recognize and label one item in a picture. The mother was encouraged to point out to her child items in the illustrations in the books and magazines which were left in the home.

Working with representational materials also involved the following sequence of activities:

- a. Matching pictures
- b. Finding differences in pictures
- c. Recalling of details in pictures
- d. Incomplete picture cards
- e. Assembling pictures in sequence

Abstract visual training in the home centered around working with colors, forms, and letters. The child was given the opportunity to match colors, forms, and letters, to manipulate them just for fun, and to reproduce forms and letters on paper and in the air. Various games were devised for play with letters, e.g., taking one away, allowing the child only to feel the letter to recognize it, etc. Mothers became involved in making letters for their children to use at home.

2. Fine motor-skill training in the home

Fine motor training was aimed primarily at developing visual-motor coordination necessary for writing. The mother was given many ideas for implementing the individual child's program, and equipment was left with her to use.

Examples of such activities include learning to use scissors, learning to coordinate hands and eyes in pasting, tracing dotted lines with fingers, and using crayons and pencils. As children became increasingly competent, many went on to learn to draw squares and triangles and began the exercises needed for beginning writing. Some of the children traced their names with their fingers, matched their names, and used primary pencils in attempting to write their names.

3. Auditory training in the home

Since learning to discriminate sounds and to listen is essential in learning to read, emphasis was placed in the afternoon program on auditory skills. In the initial period of auditory training, the focus was on the teaching of gross discrimination. By using equipment such as a portable record player, records, rhythm sticks, and drums, the child was taught to respond differentially to grossly fast or grossly slow tempos. Next, the child learned the more difficult task of responding to gross sounds with body movements, e. g., falling to the floor or raising his hand as directed. Other activities of gross discrimination included recognition of sounds both alike and different and reproduction of sounds associated with the picture, say, of a rooster or a cow.

Fine auditory discrimination was taught at a more abstract level which was more dependent on verbal responses. These activities included listening for details in stories and rhythms, classifying sounds, e. g., words that have the same initial sounds, and following directions, e. g., turning the page when the record gives a signal.

Efforts were made continuously to involve the mother in the teaching of auditory skills. For example, rhythm instruments were brought to the home so that the mother could play the "sound" games. The mother's participation proved to be helpful both in stimulating the child and in enhancing her own understanding of the teaching process. Follow-up included encouraging the mother to continue auditory teaching activities all through the week.

4. Pre-math training in the home

The home visit provided a particularly effective opportunity for developing basic math concepts, as the one-to-one relationship was ideal for single mathematical games requiring deductive thinking. Activities such as cooking and table setting were also possible in the home to introduce and reinforce elementary math principles.

Since most of the children were interested in learning to count, it was not difficult to gain the mother's participation. Generally the mothers had no idea of how to teach math skills without becoming extremely formal, suggestions were, therefore, made to let the child help her "put 4 spoons on the table", etc. Assistance was also provided to the parents for making various number games, e.g., colored blocks, empty spools of thread, buttons, beans, and cups for counting. It became evident that when cooperation and participation of the parent were secured, the child's motivation to learn was considerably augmented.

5. General science in the home

Since many everyday routines in the home involve general science, e. g., food preparation and plant care, it became a simple step for the teacher to help the mother learn how to employ these daily activities to familiarize her child with basic scientific concepts. For example, when flour and salt were used to make play dough, the teacher would talk to the child about how the water changes the flour, pointing out to the mother why it was important that she help the child observe the changes in materials. The mother was encouraged to continue to teach the child other general principles of science through similar activities, such as making Jell-O and planting seeds.

B. Individual Field Trips

Throughout the year, there was a constant effort in the afternoon to reinforce concepts taught in the morning program or to meet individual instructional needs through individual field trips. Because the morning program was primarily based on group teaching (whether in school or on a trip), it was difficult for the teacher to evaluate each child's understanding of an experience. This evaluation took place in the afternoon home visit, and an individual program could be planned. For example, if the children took a field trip in the morning to see cows, the teacher took rubber cows, a picture book about cows, and a record including cow sounds for the afternoon home visit. If she discovered through the use of these materials that the child did not really understand the animal's distinguishing characteristics, she took an individual

field trip to allow closer observation of the cow while talking with him about it on a one-to-one basis. The mother was always offered the opportunity to join the teacher and the child on these field trips.

III. Group Meetings

Monthly small group meetings of the parents were considered essential elements of the preschool program. (The men and women met in separate groups.) The meetings offered an opportunity for the mothers and fathers to exchange views and support one another's changing perceptions. It was also felt that opinions expressed by enthusiastic parents would have a greater impact on the more resistant ones than continual repetitions by the preschool staff. Chatting over pop and potato chips, away from the distractions of children and household chores, provided an opportunity for deepening the relationship between teacher and mother.

Since the culturally deprived families typically tend not to attend meetings scheduled by school personnel, intensive "reaching-out" efforts were made. Among the techniques used were repeated oral and written notices of the meeting date, offers to provide transportation, and the provision of free baby-sitting service. Near the end of the year, the more active, interested mothers became part of a planning committee and assumed responsibility for the last group session of the year. This sub-group made personal calls on other mothers to invite them to attend the next meeting, prepared the refreshments, planned the topic to be discussed, and assumed responsibility for presenting material to others. One of the initially very-hard-to-reach mothers (often not home for afternoon visits) became so involved in planning group sessions

that she complained to the teachers about some mothers who "don't seem to care" about the preschool program and fail to attend the meetings.

A variety of programs was offered in an attempt to determine which type was most effective. One meeting involved making toys and educational equipment for children; another included the showing of a film, "On Palmour Street", which depicts in sensitive terms the inter-relationship problems of a family of disadvantaged Negroes. One meeting was a trip to the local library, when the mothers were offered the opportunity to become members and to take out books. A final evaluation meeting was held when parents' views were solicited about approaches and programs that might be used in the following year. Wherever possible, parallel programs were offered to mothers and fathers to facilitate discussion at home about what had taken place. The mothers' meetings were led by the preschool teachers and the fathers' group by a male social worker in the school system. The atmosphere was always informal and no outside experts were invited. Refreshments of some type were always available at no expense to the parents.

FINDINGS

The presentation of the findings will begin with cognitive test data and proceed to teacher ratings of pupil and parent behavior and findings on home visits and group meetings. While efforts were made whenever possible not to let the diagnostician know whether the child belonged to an experimental or control group, it was often impossible to keep this identity unknown. When the identity of the child was known, it was generally agreed by the diagnosticians that the compliant control children were easier to test than the experimental children who had learned to manipulate adults and to resist them when they did not wish to cooperate.

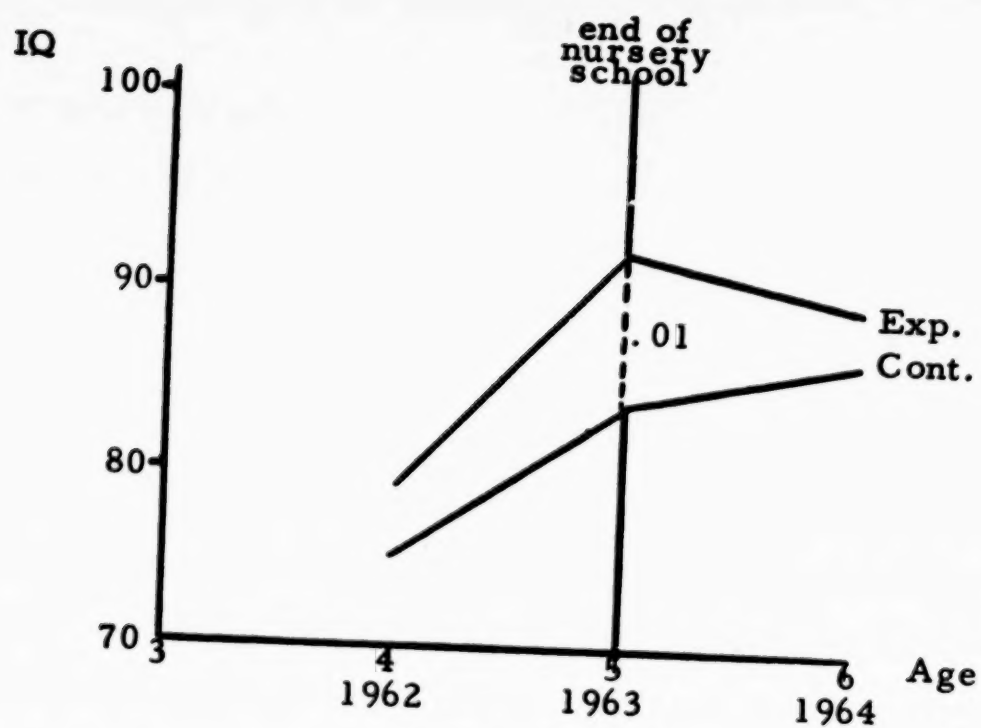
I. Stanford-Binet Intelligence Scale

Figure 1 summarizes in graphic form the Stanford-Binet IQ scores obtained during the past two years. The over-all pattern was one of increase in IQ's for all groups, as the scores of all experimental and all control groups increased. Part of this pattern can be attributed to the regression phenomenon, inasmuch as one of the criteria for inclusion in the program was an IQ score considerably below the mean. The extent of the gains precludes attributing the entire change to the regression phenomenon, however. Another common pattern was a slight decline in mean IQ during the second year under study after a dramatic spurt in the first year of preschool. Beyond this over-all pattern, the three waves were found to differ from each other.

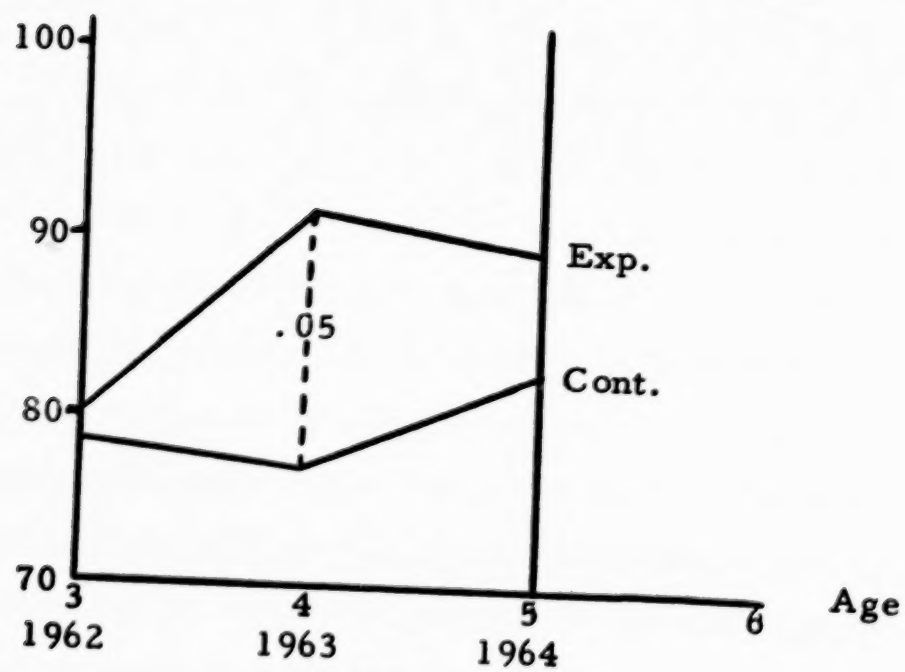
Fig. 1

Stanford-Binet Intelligence Scale

Wave 0



Wave 1



Wave 2

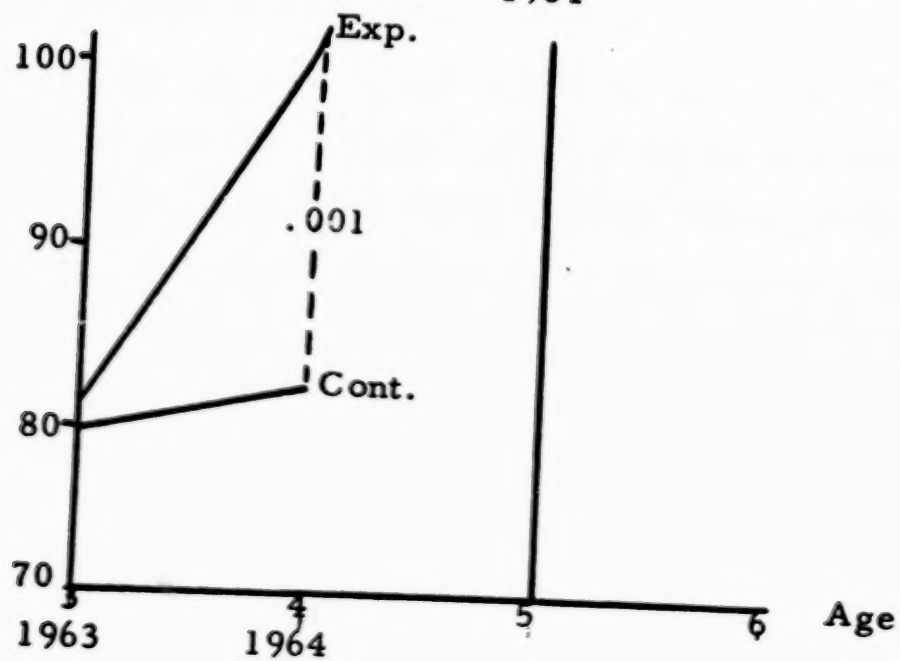


Table 2
Stanford-Binet Intelligence Scale
Wave 0 Data

<u>Time of Comparison</u>	<u>Experi- mental (N=13)</u>	<u>Control (N=15)</u>	<u>Differ- ence</u>	<u>Signifi- cance</u>
Fall, 1962 - Entrance into preschool	78.4*	75.0	3.4	n. s.
Spring, 1963 - Completion of 1 year in preschool	91.1	82.2	8.9	.01
Spring, 1964 - Completion of kindergarten	88.9	84.6	4.3	n. s.

Table 2 summarizes the data on Wave 0. It can be seen readily that although the experimental group was significantly higher in IQ after a year in preschool, the two groups were no longer significantly different at the end of kindergarten. An item analysis of each test item was performed to ascertain whether the experimental group's decline in IQ scores during the second year was due to a deceleration in the rate of development or to a loss of abilities which had been demonstrated at the end of the first year. The analysis showed that the percentage of children passing each item either did not change or increased slightly during the second year. It was concluded, therefore, that the decline in IQ scores was due to a deceleration in the rate of growth -- and not to a loss of previously demonstrated abilities.

*The mean IQ's of the experimental and control groups were initially equated, but the mean of the experimental group increased when one child had to be excluded because of the discovery of an incorrect birth date. He was believed to be four years old when he was actually five.

Table 3
Stanford-Binet Intelligence Scale
Wave 1 Data

<u>Time of Comparison</u>	<u>Experi- mental (N=10*)</u>	<u>Control (N=9)</u>	<u>Differ- ence</u>	<u>Signifi- cance</u>
Fall, 1962 - Entrance into preschool	79.1	78.3	0.8	n. s.
Spring, 1963 - Completion of 1st year in preschool	90.6	77.8	12.8	.05
Spring, 1964 - Completion of 2nd year in preschool	88.9	80.1	8.8	.10

Table 3 shows the Wave 1 data. The initial spurt of the experimental group and the slight decline during the second year can be seen from this table. The Wave 1 control group showed more stability over two years than did the Wave 0 control group, and this stability accounts for the greater difference between the two Wave 1 groups than between the two Wave 0 groups in the spring of 1964.

From Table 4 presenting the Wave 2 data, the experimental group's mean gain of 20.3 IQ points can be seen.

Table 4
Stanford-Binet Intelligence Scale
Wave 2 Data

<u>Time of Comparison</u>	<u>Experi- mental (N=13)</u>	<u>Control (N=14)</u>	<u>Differ- ence</u>	<u>Signifi- cance</u>
Fall, 1963 - Entrance into preschool	80.5	79.4	1.1	n. s.
Spring, 1964 - Completion of 1st	100.9	82.9	18.0	.001

*The size of this sample was reduced to 8 when two children moved at the beginning of the second year of nursery school.

Discussion

The increase in Stanford-Binet IQ scores of the experimental groups would have appeared more dramatic if there had been no control groups to show the changes of children from this population who were left in their natural environment. The data on the control groups were examined in hopes of finding a growth pattern among the children who were not affected by the intervening variable of nursery school. No consistent pattern was found. For example, at age three, the Wave 1 control group lost a mean of 0.6 IQ point, while the Wave 2 control group gained 3.5 points. At age four, the Wave 0 control group gained a mean of 7.3 IQ points, whereas the Wave 1 control group gained 2.3 points.

The Wave 0 control group gained a mean of 2.5 IQ points during a year in kindergarten. This gain was negligible compared to the first-year gains of all three of the experimental groups who had their first exposure to school in preschool. An important question to raise is whether the gain of the Wave 0 control group in kindergarten was due to the timing of the children's initial exposure to an educational environment or to the type of educational experience offered in kindergarten.

What can be said about the possible effects of preschool on children's performance on the Stanford-Binet Intelligence Scale? The dramatic spurt during the first year has been demonstrated three times, as Waves 0, 1, and 2 gained mean IQ's of 12.8 points (at age four), 11.5 points (at age three), and 20.3 points (at age three) respectively during the first year.

The almost identical pattern of the Wave 0 and Wave 1 experimental groups is more difficult to interpret than the consistent pattern of spurt during the first year in preschool. It may be said that the first-year spurt occurs regardless of whether children begin preschool at age three or at age four. The loss of 2.1 and 1.5 points respectively during the second year possibly could be interpreted as an indication that after one year in preschool, it makes no difference whether children go into regular kindergarten or stay in a preschool specifically designed to counteract cultural deprivation. It is the feeling of the staff, however, that the loss of 1.5 points during the second year in preschool indicates a need to strengthen the curriculum by systematically utilizing the existing theories of cognitive development.* The final conclusion regarding the desirability of two years of preschool cannot be drawn at the present time, since the criterion of desirability is the achievement of children in elementary school -- not IQ scores at age five and six.

In summary, the evidence to date regarding children's performance on the Stanford-Binet Intelligence Scale is not conclusive. Both replication and follow-up are necessary. Follow-up is especially important to determine the long-range effects of preschool intervention.

*The superior performance of the Wave 2 experimental group after the initial year in the program may reflect current efforts in this direction.

II. Leiter International Performance Scale

Figure 2 shows the children's performance on the Arthur Adaptation of the Leiter International Performance Scale, an entirely non-verbal test. The initial differences between the experimental and control groups of Waves 0 and 2 may perhaps be attributed to the time lag in test administration.* While most of the Leiter testing was completed by the end of November several examinations were not completed until January, four months after the beginning of the experimental period.

The very low initial scores for all waves and the over-all pattern of increase are due in part to the fact that most of the children did not reach the basal level of this test when they were three years old. When a child did not reach the basal level, a basal of one and a half years was assumed.

Table 5 gives the Wave 0 data. The initial means of this wave are higher than those of the other waves because the Wave 0 children were older when they were initially tested, and 66% of the children at least reached the "floor" of the test, mental age of two years. The experimental group tested significantly higher than the control group at the beginning of the experimental period, but the gains of the control group were so great that the significant difference disappeared by the end of kindergarten.

*The testing was done by regular school staff and worked in as their schedules permitted. Research funds were not available until January 1, 1964, four months after Wave 2 started in the program.

Fig. 2
Leiter International Performance Scale

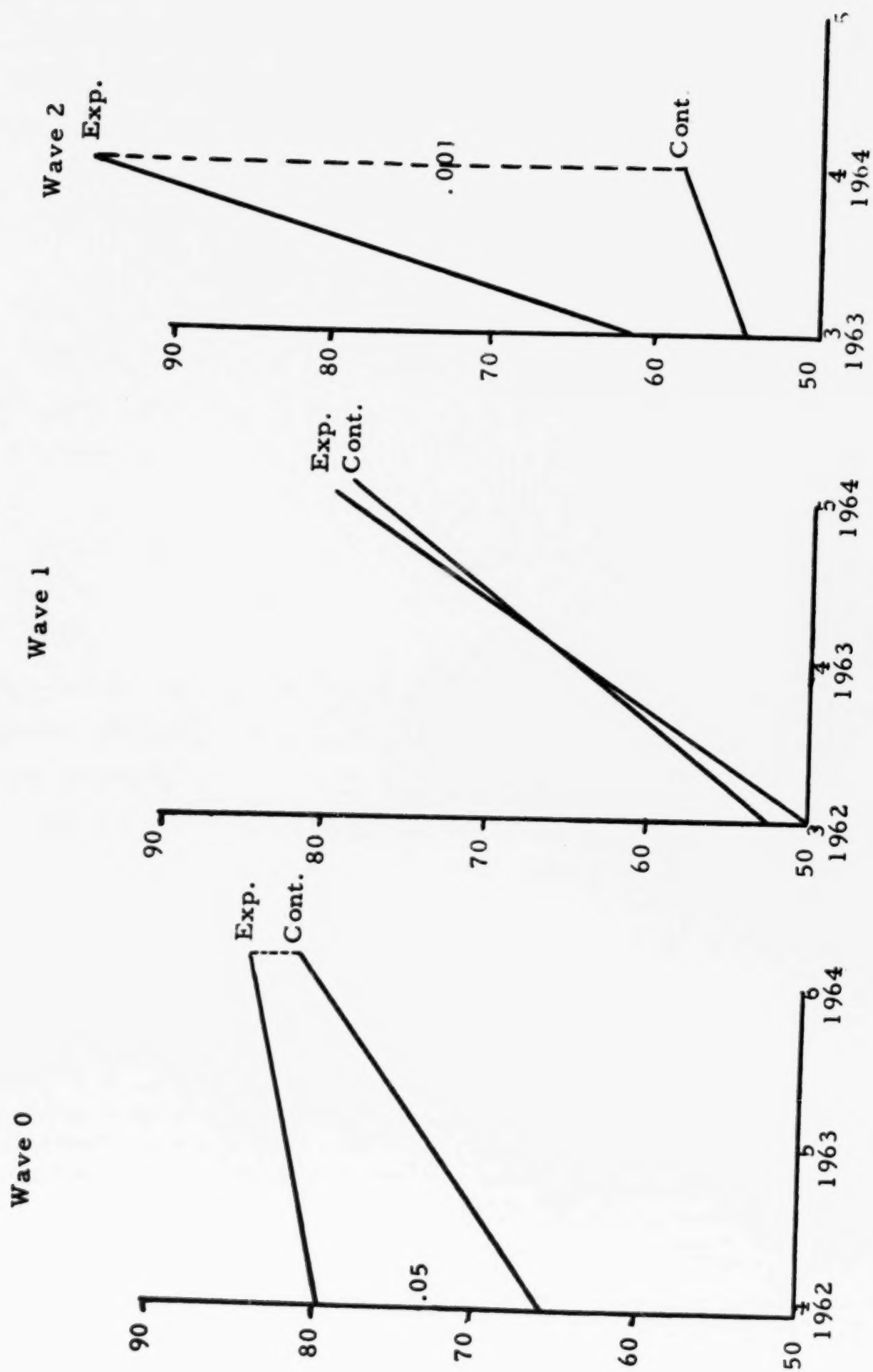


Table 5
Leiter International Performance Scale
Wave 0 Data

<u>Time of Comparison</u>	<u>Experi- mental (N=13)</u>	<u>Control (N=14)</u>	<u>Differ- ence</u>	<u>Signifi- cance</u>
Fall, 1962 - Entrance into preschool	79.4	65.8	13.6	.05
Spring, 1964 - Completion of kindergarten	83.6	80.0	3.6	n. s.

Table 6 presenting the data on Wave 1 shows that significant differences were found neither at the beginning nor at the end of the experimental period.

Table 6
Leiter International Performance Scale
Wave 1 Data

<u>Time of Comparison</u>	<u>Experi- mental (N=10)</u>	<u>Control (N=9)</u>	<u>Differ- ence</u>	<u>Signifi- cance</u>
Fall, 1962 - Entrance into preschool	49.7	52.1	-2.4	n. s.
Spring, 1964 - Completion of 2 years in preschool	79.4	77.7	1.7	n. s.

Table 7 which gives the Wave 2 data shows a dramatic difference between the control and experimental groups of this wave.

Table 7
Leiter International Performance Scale
Wave 2 Data

<u>Time of Comparison</u>	<u>Experi- mental (N=13)</u>	<u>Control (N=14)</u>	<u>Differ- ence</u>	<u>Signifi- cance</u>
Fall, 1963 - Entrance into preschool	61.6	54.9	6.7	n. s.
Spring, 1964 - Completion of 1 year in preschool	94.7	58.6	36.1	.001

III. Peabody Picture Vocabulary Test

As can be seen from Figure 3, the experimental and control groups of each wave were not equated at the beginning of the program. The initial differences between the experimental and control groups were significant at the .05, .10, and .05 levels of significance for Waves 0, 1, and 2 respectively. The principal reason for these differences is believed to have been the late date of administering this test.* Most of the testing was completed by the end of November for Waves 0 and 1 and by the end of December for Wave 2. It is believed that the experimental groups learned additional words between the beginning of October, when the program began, and the end of November or December.

Table 8
Peabody Picture Vocabulary Test
Wave 0 Data

<u>Time of Comparison</u>		<u>Experi- mental (N=13)</u>	<u>Control (N=12)</u>	<u>Differ- ence</u>	<u>Signifi- cance</u>
Fall, 1962	- Entrance into preschool	70.2	58.9	11.3	.05
Spring, 1964	- Completion of kindergarten	74.7	76.8	-2.1	n. s.

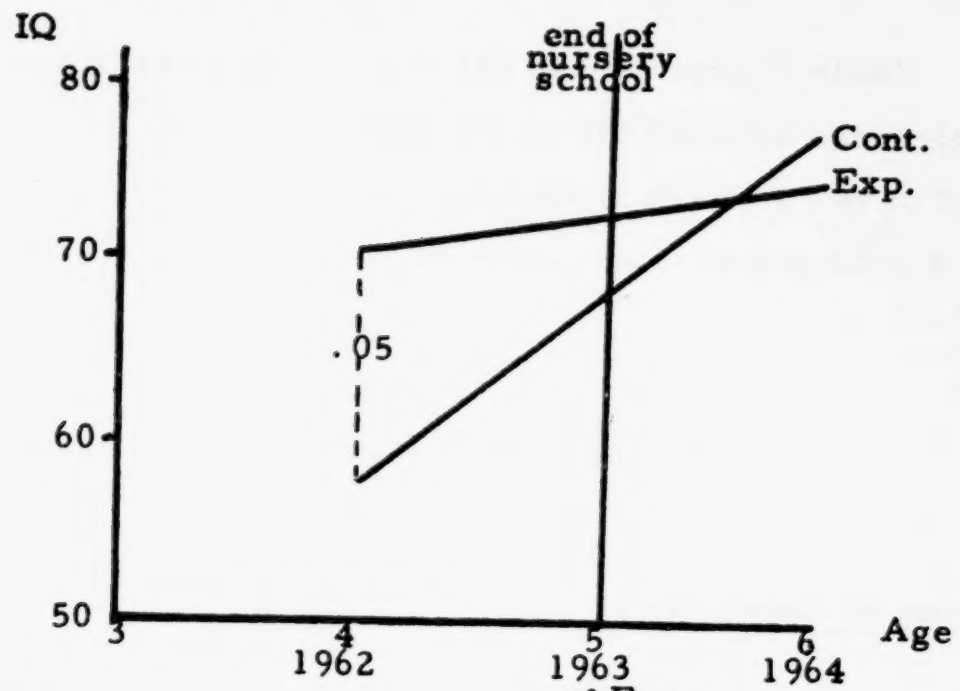
As can be seen from Table 8 presenting the Wave 0 data, the experimental group gained less than the control group did, and the control group scored slightly higher at the end of kindergarten.

*The testing was done by regular school staff and worked in as their schedules permitted. Research funds were not available until January 1, 1964, four months after Wave 2 started in the program.

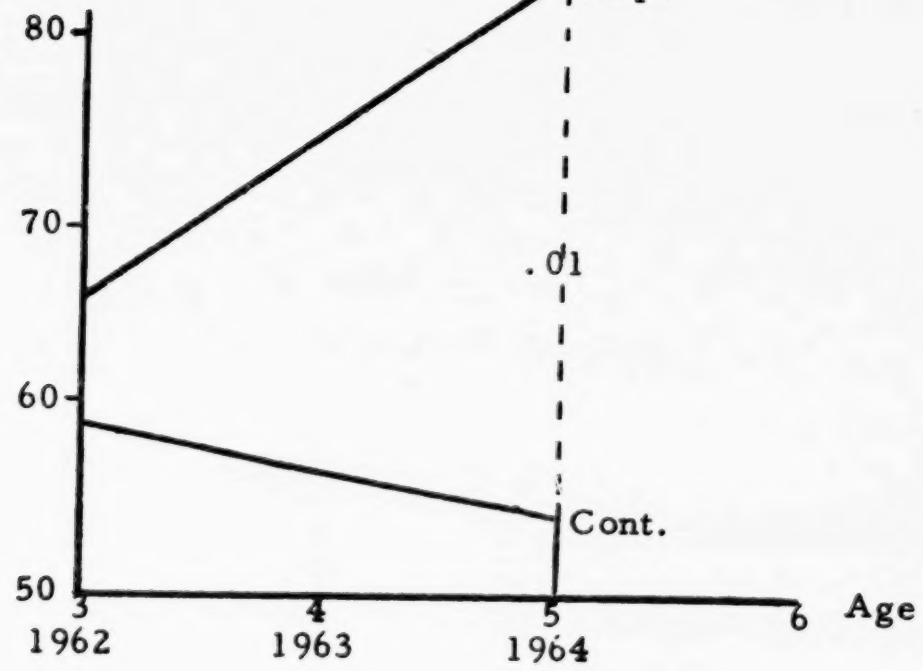
Fig. 3

Peabody Picture Vocabulary Test

Wave 0



Wave 1



Wave 2

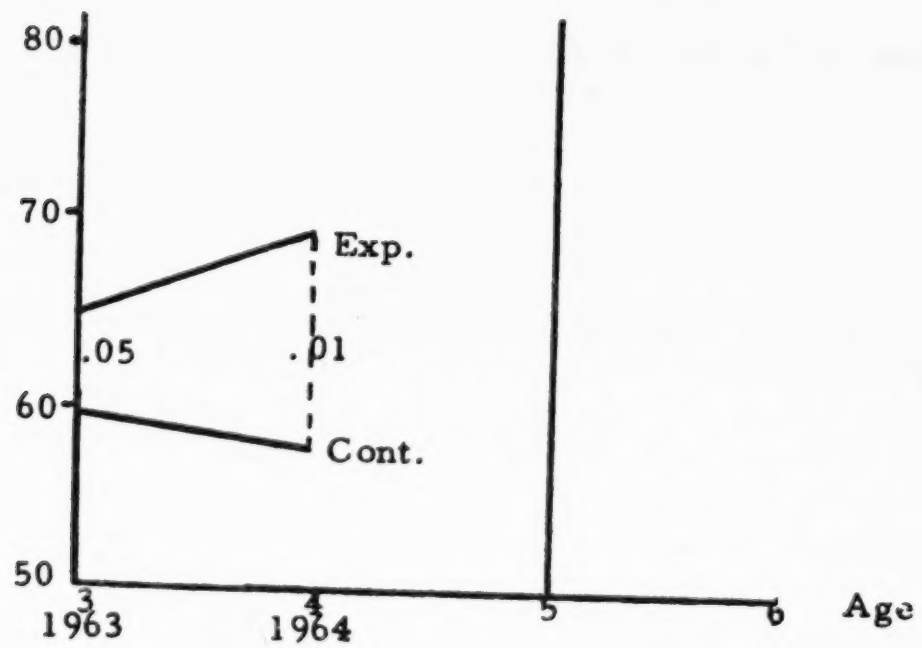


Table 9 summarizes the Wave 1 data and shows the large difference between the experimental and control groups at the end of two years in preschool. The control group's mean loss of 4.8 IQ points is of particular interest.

Table 9
Peabody Picture Vocabulary Test
Wave 1 Data

<u>Time of Comparison</u>	<u>Experi- mental (N=9*)</u>	<u>Control (N=8)</u>	<u>Differ- ence</u>	<u>Signifi- cance</u>
Fall, 1962 - Entrance into preschool	67.0	59.1	7.9	.10
Spring, 1964 - Completion of 2 years in preschool	84.6	54.3	30.3	.01

Table 10
Peabody Picture Vocabulary Test
Wave 2 Data

<u>Time of Comparison</u>	<u>Experi- mental (N=13)</u>	<u>Control (N=13)</u>	<u>Differ- ence</u>	<u>Signifi- cance</u>
Fall, 1963 - Entrance into preschool	65.1	59.9	5.2	.05
Spring, 1964 - Completion of 1 year in preschool	68.8	57.0	11.8	.01

*The size of this sample was reduced to eight at the beginning of the second year.

From Table 10, it can be seen that the Wave 2 control group, like the Wave 1 control group, lost a few points while the experimental group made slight gains. An item analysis revealed that the percentage of children in the control groups who passed each item did not decline during the experimental period. In fact, it usually increased. The scores of the Wave 1 and Wave 2 control groups declined because Peabody scores are ratios of mental age to chronological age, and the mental age of the control children increased more slowly than their chronological age.

In conclusion, it can be stated that the results from the Peabody Picture Vocabulary Test suggest that preschool probably does affect the development of "verbal intelligence". The late administration of the test does not permit a more definitive statement, and this difficulty has been corrected in the 1964-1965 testing schedule.

IV. Illinois Test of Psycholinguistic Abilities

As can be seen from Table 11, the Wave 0 experimental group scored higher than its control on six out of nine subtests. The experimental group scored significantly higher in Auditory-Vocal Association, a highly verbal and conceptual test. The control group scored significantly higher on Auditory-Vocal Sequential, a digit-span test on a non-conceptual level.

Table 11

Illinois Test of Psycholinguistic Abilities
Wave 0 Data (in Standard Scores)
Spring, 1964, upon Completion of Kindergarten

	<u>Experi- mental</u> (N=13)	<u>Control</u> (N=15)	<u>Differ- ence</u>	<u>Signifi- cance</u>
Total	-1.91	-1.88	-.03	n. s.
Auditory Vocal Automatic	-2.14	-2.20	+.06	n. s.
Visual Decoding	-.08	-.25	+.17	n. s.
Motor Encoding	-1.30	-1.02	-.28	n. s.
Auditory Vocal Association	-1.16	-1.86	+.70	.05
Visual Motor Sequential	-1.17	-1.42	+.25	n. s.
Vocal Encoding	-.83	-1.17	+.34	n. s.
Auditory Vocal Sequential	-.96	-.32	-.64	.05
Visual Motor Association	-.69	-.34	-.35	n. s.
Auditory Decoding	-.69	-.71	+.02	n. s.

Table 12

Illinois Test of Psycholinguistic Abilities
Wave 1 Data (in Standard Scores)
Spring, 1964, upon Completion of 2 years in Preschool

	<u>Experi- mental</u> (N=8)	<u>Control</u> (N=9)	<u>Differ- ence</u>	<u>Signifi- cance</u>
Total	-1.36	-2.06	+.70	n. s.
Auditory Vocal Automatic	-1.56	-2.04	+.48	n. s.
Visual Decoding	-.34	-.47	+.13	n. s.
Motor Encoding	-.74	-1.57	+.83	.05
Auditory Vocal Association	-.98	-2.12	+1.14	.05
Visual Motor Sequential	-1.93	-1.30	-.63	n. s.
Vocal Encoding	-1.26	-1.32	+.06	n. s.
Auditory Vocal Sequential	-.26	-.15	-.11	n. s.
Visual Motor Association	.12	-.48	+.60	n. s.
Auditory Decoding	-.26	-.95	+.69	n. s.

A few observations can be made from Table 12, which presents the Wave 1 data. First, the experimental group scored higher than the control group on seven out of nine subtests. On two of these seven subtests, the differences between the experimental and control groups were significant, i. e., Auditory-Vocal Association and Motor Encoding. The superiority of the Wave 1 experimental group over its control on Auditory-Vocal Association, a highly verbal and conceptual test, not only replicates but also magnifies a similar finding from the Wave 0 data. A difference in excess of one standard score between the experimental and control groups is quite dramatic. The superiority of the experimental group on Motor Encoding may be attributed to the emphasis in the program on dramatic play. The two subtests on which the control group excelled the experimental group are in the "sequential" area, which requires rote auditory or visual memory, and minimal conceptualization.

A decision was made to use the data on three-year-old children only to determine the initial comparability of the experimental and control groups and not for diagnostic purposes. The reason for this decision was that an examination of the standard-score norms given in the test manual shows that the "floor" of the Illinois Test of Psycholinguistic Abilities is too high for the population of the present study at age three. For example, in the 3-3 to 3-9 age range, a score of 0 yields the following standard scores on the nine subtests: -1.37, -1.35, -1.97, -2.12, -1.44, -2.23, -2.58, -2.01, and -1.63. From these data, it can be seen that ITPA information on three-year-olds is of little practical or experimental use.

V. Gates Reading Readiness Tests

Toward the end of the 1963-1964 school year, the Gates Reading Readiness Tests were administered to the Wave 0 experimental and control children in kindergarden. These tests consist of five subtests, and a composite of the five scores gives a general measure of a child's ability to begin reading.

Table 13
Gates Reading Readiness Tests
Wave 0 Data
Spring, 1964, upon Completion of Kindergarten

	Mean Percentile Rank		Differ- ence	Signifi- cance
	Experi- mental	Control		
	(N=13)	(N=15)		
Picture Directions	35.5	21.8	13.7	.05
Word Matching	49.5	40.0	9.5	n. s.
Word-Card Matching	63.2	42.7	20.5	.05
Rhyming	68.1	65.9	2.2	n. s.
Letters and Numbers	47.5	40.8	6.7	n. s.
TOTAL	52.8	42.2	10.6	n. s.

As can be seen from Table 13, the experimental group tested higher than the control group on all five of the subtests. Statistically significant differences were found in Picture Directions and in Word-Card Matching. Compared to the other three subtests on which no significant differences were found, these two subtests require a number of complex skills. The first, Picture Directions, requires the following abilities according to the manual:

Ability to listen and to understand what the examiner is saying

Ability to remember for a short time what is said

Ability to grasp and make use of various important words and concepts

Ability to interpret illustrations such as are found in beginning books. This involves getting the meaning of the whole picture, locating objects in it, etc.

Ability to employ all the above in executing the directions

The skills required to do well on Word-Card Matching are similar to those that are tapped by Word Matching, except that the former involves additional abilities such as short-term visual memory and the development of the ability to compare a smaller printed word with the memory of a larger word.

VI. Teacher Ratings of Pupil and Parent Behavior

To determine whether the preschool experience affected subsequent school behavior as perceived by the classroom teacher, the two kindergarten teachers at Perry School were asked in May, 1964, to rate both the control and experimental children who had been in their classes. The 27 children in the control and experimental groups had been randomly assigned to the two teachers, but chance did not produce an even distribution. One teacher was assigned 8 control and 4 experimental children, while the other teacher had 6 control and 9 experimental children. When the rating forms were handed to the teachers, the children's names appeared on the forms with no identification as to the group to which each child belonged. It must be pointed out, however, that it was impossible to prevent the teachers from knowing which youngsters had attended preschool, as the children themselves frequently referred to the nursery.

Two rating forms were used: The Vinter Rating Form and the Ypsilanti Rating Scale, both of which concern the child's academic and social adjustment. The Vinter scale implicitly asks the rater to compare the child with his own image of the "average child", whereas the Ypsilanti scale asks the rater to compare the child with others in the same class.

The Vinter rating form consists of 34 variables which have yielded four factors (motivation and interest in school work, general emotional state, relationship with peers, and relationship with teachers). For the purposes of this study, three items concerning parental attitudes toward education were added to the original form. The 37 variables of the Vinter Teacher Rating Form appear in Appendix C. The teacher is asked to rate the child on each variable on a 5-point scale, reporting the child (or mother) as displaying a characteristic very frequently, frequently, sometimes, infrequently, or very infrequently.

After assigning each rating a number of one through five, the mean scores of the control and experimental groups were compared on each of the 37 items using the t test. Of the 37 items, the following three showed significant differences between the two groups ($p < .05$):

1. Possessive of teacher. (The experimental group was rated as being more often possessive.)
2. Uninterested in subject matter. (The experimental group was rated as being more often interested.)
3. Shows initiative. (The experimental group was rated as more often showing initiative.)

For an over-all comparison of the two groups, the sign test was performed on all 37 items taken together. This approach was

taken in order to determine whether or not the ratings of the experimental group were generally in the socially more desirable direction, i. e., higher in mean score. The experimental group had a higher mean score on 27 items, whereas the control group had a higher mean score on 10 items. The sign test indicated at the .05 level of confidence that the experimental group was generally seen by the classroom teacher as behaving in a more socially desirable manner than the control group.

"Possessive of teacher" is usually considered to be an undesirable characteristic. However, this characteristic can also be viewed as an attempt toward a more positive relationship with the teacher. For a group of disadvantaged preschool children, seeking to establish a close relationship with a middle-class socializing agent may be a necessary step in internalizing the values which are held in high regard by the school and in achieving academic success.

The particular form of the Ypsilanti Rating Scale which was used in the spring of 1964 appears in Appendix C. It uses a 7-point scale and includes 11 dimensions concerning the child and two dimensions concerning the mother.

The t test used to compare the mean ratings of the mothers of the experimental and control groups indicated that the experimental group's mothers were rated as being significantly higher on both of the following items ($p < .05$):

1. Mother's cooperation shown
2. Prediction of mother's future school relationship

As for the children, the experimental group was rated as being significantly higher than the control group on two of the 11 dimensions ($p < .05$). They were

1. Level of verbal communication

2. Level of imagination

The mean of the experimental group was higher (i. e., in the socially more desirable direction) on nine of the 11 items comprising the Ypsilanti Rating Scale.

VII. Home Visits

A. Number of visits made

Table 14

Summary of 1963-1964 Home Visits

		Percent
Number of possible home visits between 10-7-63 and 5-29-64	436*	100%
Number of actual home visits	307	70%
Number of home visits not completed	129	30%
Because of mother's absence from home	48	11%
Because of child's illness, teacher's illness or teacher's unavailability due to preparation for conferences, meetings, etc.	81	19%
Average number of home visits made per mother	16	
Average length of home visits	87 minutes	

*This figure includes 19 homes. There were two sets of siblings in the nursery. One family moved in mid-April. and three children entered the program in December.

The data in Table 14 can be interpreted as showing that it was possible to establish a relationship with mothers which resulted in their making themselves available on a regular weekly basis to receive a teacher into their homes. When visits were not made, in the majority of occasions it was due to factors other than the parents' lack of cooperation with the program. The teachers have been subject to an inordinate amount of personal illness, generally in the nature of a respiratory infection. It is believed that going in and out of homes which are at times overheated and at other times quite chilly may be at least partially responsible for the teachers' poor health.

B. Involvement of Mothers During Home Visits

The following table is based on an evaluation by the home-visit consultant upon reading the teachers' reports written after each visit:

Table 15

Degree of Mothers' Involvement in the Educational Process during Home Visits

Total number of mothers evaluated (2 mothers had 2 children in the nursery)	18*	100%
Mothers showing considerable involvement	6	33%
Mothers showing moderate involvement	9	50%
Mothers showing slight involvement	3	17%

*A family which moved in April is not included.

An example of "considerable involvement" is a mother's active participation in the teaching activity in one capacity or another. "Moderate involvement" refers to a mother's joining the teacher and child from time to time and commenting on his work. "Slight involvement" consists typically of a mother's remaining in another room and offering vague words of encouragement from a distance.

In an effort to provide the mother with specific teaching skills the teachers prepared three booklets for parents' use. The booklets describe how to teach youngsters to count, to discriminate colors, and to engage in dramatic play. One of the booklets on dramatic play is included in Appendix B to illustrate the type of booklets which have been written. Four additional booklets are in various stages of preparation.

C. Activities Engaged in During Home Visits

The data in Table 16 indicate that the type of activity performed in the homes of first-year pupils did not differ markedly from the activities provided for second-year pupils. However, slightly more time appears to have been spent in skill training with younger children, while older pupils spent somewhat more time with books and on field trips. This difference may reflect a transition by the teachers from pure skill training to application of skills to content areas as the child's mastery developed.

Table 16
Activities Engaged in during Home Visits *
1963-1964

Type of Activity		Wave 1 (10 children - 251 activities reported)	Wave 2 (11 children - 452 activities reported)
I.	Field trips	14%	12%
II.	Skill training	54%	63%
	A. Motor skills	3%	3%
	B. Auditory skills	7%	5%
	C. Visual skills		
	1. Representational	23%	28%
	2. Abstract		
	a. Color	5%	7%
	b. Form	9%	10%
	c. Letters	0	1%
	D. Other sensory skills	0	2%
	E. Numerical skills	5%	6%
	F. Concept formation above the sensory level	2%	1%
III.	Broadening Experiential Background	32%	25%
	A. In art	6%	8%
	B. In music	5%	2%
	C. In science	3%	2%
	D. In dramatic play	4%	2%
	E. With books	14%	11%

*The percentages refer to the relative frequency of times the particular type of activity was reported as a major focus of the home visit. The amount of time spent on specific activities is not considered in these percentages.

D. PARI Data

1. Comparison of Middle-Class and Lower-Class Child-Rearing Attitudes

The Parental Attitude Research Instrument was administered in the fall of 1962 to 43 mothers in the experimental and control groups and to 51 mothers who had a child attending kindergarten in a White, middle-class school within the Ypsilanti Public School System. The responses were factor analyzed and the attitudes of both groups of women were compared. The findings were described in a paper entitled "Parental Attitudes of the Culturally Deprived" which has been submitted for publication. Two pertinent results were found. One was the great variation in class sensitivity among the subscales. A second was that a highly class-sensitive fourth factor labeled "Maternal Anxiety" emerged in addition to the three factors which had been discovered by other researchers (Approval of Maternal Control, Approval of Expression of Hostility, and Approval of Positive Attitudes toward Child Rearing). It was felt that other studies had not identified "Maternal Anxiety" because they had not included a population as deprived as the one participating in the Perry Preschool Program.

Certain adaptations were made in techniques of administering the PARI to a disadvantaged population. These adaptations were described in a paper entitled "The Use of Parental Attitude Questionnaires with Culturally Disadvantaged Families", which was read at a meeting of the Ohio Sociological Society in May, 1964.

2. Changes in Attitudes

The PARI was again administered to the control and experimental mothers in the spring of 1963, and the changes in attitudes were analyzed within each group. It was found that in the experimental group there was a significant correlation between the degree of class sensitivity of the subscale and the change in attitude ($r_b = .83$). The shift was consistently toward the middle-class position. In the control group, no significant change in attitude was discerned. Inasmuch as the class-sensitive subscales involved suppression of sexuality, suffering by mothers, dependency of mothers, etc., which were not the major focus of the discussions between teacher and mother, it was felt that the mere interaction with a middle-class role model over a prolonged period of time served to change some of the attitudes which deviate markedly from those of middle-class mothers. If their genuine attitudes did not change, at least their knowledge of the socially approved reply can be said to have been affected. This surface change, too, is of significance.

In order to determine whether or not there was any particular factor related to attitude change, the background data of the mothers in the experimental group were studied. It was found that while the education of the mother, number of children, and cultural-deprivation rating were not of apparent importance, the mothers' age and the birth order of the child in the preschool program were of significance.

The older the mother, the greater the likelihood of her changing, and the closer the preschooler to the position of baby in the family, the greater the likelihood that the mothers' attitude would shift. (The Index of Order Association between shift in attitude and the significant background data were .42 ($p < .01$) for age of the mother, .63 ($p < .01$) for birth order from the youngest, and -.56 ($p < .01$) for birth order from the oldest.) Thus it appears that within the experimental group, which ranged in age from 21 to 45, the older mother with a baby in the nursery was most responsive to the presence of a middle-class teacher in her home. Perhaps she has mellowed somewhat, is not quite as certain of her views as she once was, and is more open to another orientation.

An item analysis was made of the replies of middle-class and disadvantaged mothers to the PARI. This study has been described in a paper entitled "The Child-Rearing Attitudes of Disadvantaged, Negro Mothers and Some Educational Implications" which has been accepted for publication*. The major finding of the analysis was that within the 115 PARI items there are some that are highly class sensitive and others which, as a whole, may be labeled as "Non-Class Sensitive". The changes in the 14 most class-sensitive items and the 8 least class-sensitive items between the fall of 1962 and the spring of 1963 were studied in both experimental and control groups. It was found that a significant change took place only in the experimental group among the 14 class-sensitive items.

*In The Journal of Negro Education

Table 17
Attitude Shifts of Experimental- and Control-Group
Mothers on 8 Non-Class-Sensitive PARI Items*

	Shift away from Middle class	No Shift	Shift toward Middle class
Experimental	34	106	34
Control	20	79	29

Chi square = 1.29 (n. s.)

Table 18
Attitude Shifts of Experimental- and Control-Group
Mothers on 14 Class-Sensitive PARI Items*

	Shift away from Middle class	No Shift	Shift toward Middle class
Experimental	53	156	96
Control	41	131	39

Chi square = 10.55 ($p < .01$)

Based on the above data, a shortened form of the PARI was developed containing a total of 32 items** which include the 14 most class-sensitive items, the 8 least class-sensitive

*The numbers indicate frequencies, i. e., one mother's shift on one item constitutes a frequency of 1. A frequency of 10 would indicate 10 mothers' shift on one item or one mother's shift on 10 items.

**The 5 items on the Strictness subscale were added in the fall of 1964. This subscale consists of items such as "Most children need more discipline," and "A child will be grateful later on for strict discipline."

items, and the 10 items with which the disadvantaged population disagreed most frequently. This new form is described in the paper "The Use of Parental Attitude Questionnaires with Culturally Disadvantaged Families".

3. Relationship between Parental Attitudes and Change in the Child's IQ

In order to determine whether or not any part of the PARI had predictive value, a study was made of the fall, 1962, PARI subscale scores and the changes in the Stanford-Binet scores of the experimental and control groups. It was hypothesized that parents with the most "lower-class" attitudes would have children who respond least well to the preschool program. This hypothesis was not confirmed, but it was found that a non-class-sensitive subscale, "Strictness"*, correlated negatively and significantly with change in Stanford-Binet IQ.

VIII. Group Meetings

The attendance at group meetings is summarized in Table 19. While attendance was generally better at fathers' meetings than mothers', it is difficult to state with any assurance what caused the difference. The meeting site may have been a relevant factor, since the fathers met at a community center, whereas the mothers met at school. It is the staff's feeling, however, that the men who maintain their role as fathers in Negro disadvantaged families are a select group. They appear to be deeply concerned about their children. Some of this feeling was captured on a tape made at the

*See second footnote on page 53.

last fathers' meeting of the year when the men discussed in great earnestness the fears and hopes they had for their children. They were somewhat critical of the supervision the youngsters received at the elementary school and offered some very practical suggestions to alleviate the problem. These men may well be an untapped resource to the school working with a disadvantaged population if techniques for reaching them can be devised.

Table 19
Attendance at Group Meetings

	Mothers	Fathers
Number of meetings held	5	7
Potential number in attendance per meeting	19*	9
Average percent of attendance at meetings	36%	49%
Percent of individuals attending 50% or more of meetings	37%	67%
Percent attending at least one meeting	79%	78%

IX. Attendance

Table 20
Absences of Wave 0
Experimental and Control Groups
in Kindergarten (1963-1964)

	<u>Experi- mental</u>	<u>Control</u>	<u>Differ- ence</u>	<u>Signifi- cance</u>
Mean Number of Days Absent	13.0	28.9	15.9	.05

*The mothers were divided into two groups. There were never more than ten women invited to any one meeting. The two teachers who visited the ten women attended "her" mothers' meeting.

Table 20 shows the mean number of days the experimental and control groups were absent in kindergarten during the school year 1963-1964. The average number of days missed by the experimental group was 13, while the figure for the control group was 28.9. The difference between the two groups was significant at the .05 level.

X. Need-Achievement Measures

Need-Achievement measures, as developed by Dr. Joseph Veroff, of the University of Michigan, were administered to both the experimental and control groups of Wave 0 during the spring of 1963. (See Appendix C for a more detailed discussion of the measures.) Need-Achievement was assessed in order to evaluate the possible effect of the program on this motivational variable.

Essentially, the results were inconclusive, and none of the tasks significantly distinguished between the experimental and the control groups. The following reasons may account for the inconclusive results:

1. The tasks used are not adequate measures of need-Achievement in very young children or in children from culturally deprived environments.
2. The experimental program as designed does not lead to an increase in the level of need-Achievement.

The latter explanation does not seem to be supported by other measures of motivational level such as Vinter's Teacher Rating Form. A third explanation may be that need-Achievement is just not measurable at such an early age. In view of these difficulties, a decision was made not to replicate the need-Achievement study inasmuch as this kind of measure was felt to be useful neither for the comparison of the groups nor for furthering the progress of the preschool program at this time.

SUMMARY AND CONCLUSIONS

The Perry Preschool Project is an experiment with replications to assess the impact of a cognitive program upon the educability of functionally retarded, culturally deprived, Negro, preschool children. The program consists of a cognitively oriented morning preschool, afternoon home visits to involve mothers in the educative process, and group meetings for the parents of the children in the program.

At the end of the second year of operation, the Project arrived at a stage where some data began to give hints of possible outcomes. Three groups, or waves, were involved by June, 1964: Wave 0 who started as four-year-olds in September, 1962, Wave 1 who started as three-year-olds in September, 1962, and Wave 2 who started as three-year-olds in September, 1963. The findings on the various waves are summarized below.

Wave 0. The only group to enter the project as four-year-olds, the Wave 0 experimental group demonstrated a first-year intellectual spurt as measured by the Stanford-Binet. As with the Leiter and the Peabody, however, the difference between the control and experimental groups on the Binet was not statistically significant after two years (one year in preschool and one year in kindergarten). While only one of the subscales of the Illinois Test yielded a significantly higher mean, the general trend was in favor of the experimental group, particularly on the more complex subscales. The Gates Reading Readiness Tests also showed that the experimental group was generally superior to the control group. The two Gates subtests on which statistical significance was found were the more complex ones.

Perhaps the most important finding was that the experimental group appeared significantly better than the control group in the eyes of the kindergarten teachers in interest in subject matter, initiative, use of the teacher, level of imagination, and level of verbal communication. While the standardized test data on Wave 0 do not prove the superiority of the experimental group in intelligence, the academic tools and attitudes with which this group left kindergarten suggest that these children will probably continue to excel the control group in first grade.

Wave 1. The Wave 0 Stanford-Binet IQ pattern was repeated by Wave 1, the first group to complete two years of preschool. Following the first-year spurt, the experimental group did not differ significantly from its control by the end of the second year. Neither did the Leiter show the experimental group to be significantly superior at the end of the second year. The Peabody, however, demonstrated a marked superiority of the experimental group. This encouraging finding was supported by the Illinois Test on which the experimental group performed better than the control particularly on complex subscales, reaching statistical significance on two subscales.

The failure of the cognitively oriented preschool to improve on first-year gains on the Stanford-Binet is cause for concern.

Wave 2. Data for this wave are limited to the first year in preschool. The expected first-year spurt as measured by the Stanford-Binet is dramatically evident. The Peabody results followed the identical pattern found in Wave 1, and the Leiter also recorded a first-year growth spurt. Wave 2 can be said to have had an educational environment which is different in two ways from the one provided for the previous waves. First, the teachers had had a year of experience in evolving specific techniques to work with three-year-olds. Second, the Wave 2 children had the benefit of learning from four-year-old

children who had had a year of preschool at age three. All the waves arriving after Wave 2 will continue to have the same kind of environment as the one from which Wave 2 appears to have benefited.

To summarize other findings from the three waves taken together, the instructional method found to be effective is "verbal bombardment", which means that the teacher maintains a steady stream of questions and comments to draw the child's attention to aspects of his environment. This "bombardment" does not necessarily demand answers on the part of the children. It is continued in rewarding a child for good performance, in disciplining him, and in presenting academic material, and the complexity of the language is increased as the child's verbal ability develops. It is this "bombardment" that seems to produce dramatic growth in intelligence. An observer in preschool receives the impression that the teacher is acting like a middle-class mother interacting with her young children.

A review of the teacher reports revealed that the emphasis of the home-visit program was on skill development such as visual, auditory, and other perceptual and conceptual training. The teachers also focused upon broadening the experiential background particularly through field trips.

The Parental Attitude Research Instrument was used to assess the parents' child-rearing attitudes of both the control and experimental groups. Factor analysis revealed a new factor, Maternal Anxiety, in addition to the factors obtained by other researchers. It also became evident that certain subscales are class sensitive. The mothers in the experimental group moved significantly towards a middle-class child-rearing orientation during the first year of contact, while the

mothers of the control group did not shift from their original expressed attitudes.

An important finding was that a PARI subscale, Strictness, is related negatively with Stanford-Binet IQ change. If this relationship holds up with future groups, a significant predictor of potential success in compensatory preschool education will have been identified.

Conclusions

The findings at this time are tentative, as they have not been substantiated by replication. The criteria of the effectiveness of preschool to compensate for cultural deprivation are academic success and school adjustment, not immediate change on individual intelligence tests. Caution is, therefore, necessary in interpreting the data. The following conclusions seem to be tenable:

1. Individual intelligence tests

While statistically significant gains are registered after the first year, the gains of control groups have been large enough to make the first-year gains nonsignificant at the end of the second year except on the Peabody with Wave 1. The Peabody maintained a significant difference over two years. Of the four tests used for evaluation of intellectual growth, the Stanford-Binet, a verbal, culturally biased intelligence test, has been found to give the highest single estimate of intellectual ability. An entirely non-verbal test and a purely verbal test have both been found to yield lower estimates.

2. Effect on parents

Contrary to the general opinion in social work and education, it has been found that teachers can establish meaningful relationships with so-called "hard-to-reach" mothers. This contact has resulted in the involvement of mothers in the education of children and in a shift in child-rearing attitudes toward a middle-class position.

3. Overall performance after preschool

The only experimental group to have completed one year of kindergarten demonstrated better ability than the control group on nearly all the variables considered in the Project, e.g., relationship with adults, achievement, school motivation, and attendance. It is this "across-the-board" strength that gives substance to the belief that preschool offers much hope for ameliorating the learning problems of a majority of the functionally retarded, culturally deprived, Negro children.